

**WHAT IS CLAIMED IS:**

1. A method for recording search information for a digital data stream using a digital recording apparatus, the method comprising the steps of:

recording the received digital data stream by grouping the received digital data stream into a plurality of stream object units, each stream object unit having a predetermined time length, and at least one stream object unit forming a stream object having a start packet arrival time and a last packet arrival time;

preparing a stream time map information table associated with each stream object;

recording time length information for each stream object unit in a mapping list in a predefined order, the mapping list being separately maintained from the stream object; and

recording index information in the stream time map information table of a selected stream object, wherein the index information includes an index number to locate a first stream object unit associated with the selected stream object.

2. A method of claim 1, wherein the time length information is expressed in terms of a count value counted at a constant interval.

3. A method of claim 2, wherein the count value is a number incremented by one over each constant interval.

4. A method of claim 1, wherein the stream time map information table associated with each stream object contains a stream object unit size, an index number, a number of mapping list entries, a start packet arrival time and a last packet arrival time.

5. A method of claim 1, wherein the mapping list includes a first group of time length information and a second group of time length information, the first group associated with a first stream object and the second group associated with a second stream object.

6. A method for recording search information for a digital data stream using a digital recording apparatus, the digital data stream being grouped into a plurality of stream object units,

each stream object unit having a predetermined time length and at least one stream object unit forming a stream object having a start packet arrival time and a last packet arrival time, the method comprising the steps of:

- preparing a stream time map information table associated with each stream object;
- recording time length information for each stream object unit in a mapping list in a predefined order, the mapping list being separately maintained from the stream object; and
- recording index information in the stream time map information table of a selected stream object, wherein the index information includes an index number to locate a first stream object unit associated with the selected stream object.

7. A method of claim 6, wherein the time length information is expressed in terms of a count value counted at a constant interval.

8. A method of claim 7, wherein the count value is a number incremented by one over each constant interval.

9. A method of claim 6, wherein the stream time map information table associated with each stream object contains a stream object unit size, an index number, a number of mapping list entries, a start packet arrival time and a last packet arrival time.

10. A method of claim 6, wherein the mapping list contains a first group of time length information and a second group of time length information, the first group associated with a first stream object and the second group associated with a second stream object.

11. A method for selectively searching recorded digital data streams recorded in a recording medium having a mapping list and a stream object, the data streams stored in a plurality of stream object units, each stream object unit having a predetermined time length and at least one stream object unit forming a stream object having a start packet arrival time and a last packet arrival time, and the mapping list contains time length information for each stream object unit, the recording medium further having a stream time map information table associated

with each stream object, the stream time map information table containing index information to locate a first stream object unit associated with a selected stream object, the method comprising the steps of:

- (a) selecting a stream object for reproduction;
- (b) locating the stream time map information table corresponding to the selected stream object;
- (c) reading the index information of the stream time map information table, wherein the index information contains a number to locate the first stream object unit corresponding to the selected stream object; and
- (d) locating the first stream object unit corresponding to the selected stream object.

12. A method of claim 11, further comprising the step of (e) reading the time length information of the first stream object unit from the mapping list.

13. A method of claim 12, wherein the stream object is selected base on an externally defined search time and the time length information read from the mapping list is accumulated with subsequent time length information until a stream object unit corresponding to the externally defined search time is located.

14. A method of claim 13, further comprising the step of (f) reproducing the recorded digital data stream from the stream object unit corresponding to the externally defined search time.

15. An apparatus for recording search information for a digital data stream on a recording medium, the apparatus comprising:

recording means for receiving the digital data stream by grouping the received digital data stream into a plurality of stream object units, each stream object unit having a predetermined time length, and at least one stream object unit forming a stream object having a start packet arrival time and a last packet arrival time;

means for preparing a stream time map information table associated with each stream object on the recording medium;

means for recording time length information for each stream object unit in a mapping list in a predefined order, the mapping list being separately maintained from the stream object; and

means for recording index information in the stream time map information table of a selected stream object, wherein the index information includes an index number to locate a first stream object unit associated with the selected stream object.

16. An apparatus of claim 15, wherein the time length information is expressed in terms of a count value counted at a constant interval.

17. An apparatus of claim 16, wherein the count value is a number incremented by one over each constant interval.

18. An apparatus of claim 15, wherein the stream time map information table associated with each stream object contains a stream object unit size, an index number, a number of mapping list entries, a start packet arrival time and a last packet arrival time.

19. An apparatus of claim 15, wherein the mapping list includes a first group of time length information and a second group of time length information, the first group associated with a first stream object and the second group associated with a second stream object.

20. An apparatus for selectively searching recorded digital data streams recorded in a recording medium having a mapping list and a stream object, the data streams stored in a plurality of stream object units, each stream object unit having a predetermined time length and at least one stream object unit forming a stream object having a start packet arrival time and a last packet arrival time, and the mapping list contains time length information for each stream object unit, the recording medium further having a stream time map information table associated with each stream object, the stream time map information table containing index information to

locate a first stream object unit associated with a selected stream object, the apparatus comprising:

means for selecting a stream object for reproduction;

means for locating the stream time map information table corresponding to the selected stream object;

means for reading the index information of the stream time map information table, wherein the index information contains a number to locate the first stream object unit corresponding to the selected stream object; and

means for locating the first stream object unit corresponding to the selected stream object.

21. An apparatus of claim 20, further comprising means for reading the time length information of the first stream object unit from the mapping list.

22. An apparatus of claim 21, wherein the stream object is selected base on an externally defined search time and the time length information read from the mapping list is accumulated with subsequent time length information until a stream object unit corresponding to the externally defined search time is located.

23. An apparatus of claim 22, further comprising means for reproducing the recorded digital data stream from the stream object unit corresponding to the externally defined search time.

24. A recording medium for use with an apparatus for recording search information for a digital data stream thereon, the recording medium comprising:

a plurality of stream object units, each stream object unit comprising a portion of the data stream and having a predetermined time length, and at least one stream object unit forming a stream object having a start packet arrival time and a last packet arrival time;

a stream time map information table associated with each stream object recorded on the recording medium;

a mapping list for recording time length information for each stream object unit in a predefined order, the mapping list being separately maintained from the stream object; and  
index information recorded in the stream time map information table for a selected stream object, wherein the index information includes an index number to locate a first stream object unit associated with the selected stream object.